"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 29555-66

ACC NR: AP6018052

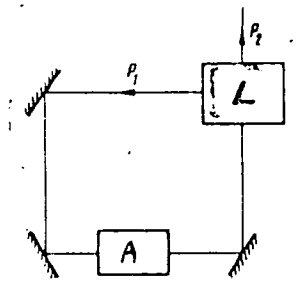

Fig. 1. Diagram of equipment for generation of short light flashes

L - Laser; A - amplifier.

is obtained and a numerical example is presented. It is shown that radiation pulses of 5.6×10^{-11} at half-power points with depth of modulation almost 100% are feasible in such a scheme. Orig. art. has: 1 figure and 19 formulas. [02]

SUB CODE: 20/ SUBM DATE: 23Feb66/ ORIG REF: 003/ ATD PRESS: 5015

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

BASOV, N.G.; MOROZOV, V.N.; ORAYEVSKIY, A.N.

Nonlinear interaction of various kinds of oscillations in a laser. Zhur. eksp. i teor. fiz. 49 no.3:895-904 S '65. (MIRA 18:1)

1. Fizicheskiy institut imeni Lebedeva AN SSSR.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

[illegible] [illegible]MENOV, Yu.N.

Ceramic metal iron [illegible] [illegible] of diesel fuel. [illegible]
Porosh.met. 4 no.[illegible] [illegible]

1. Institut [illegible] [illegible]
[illegible]delenive.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

CHERASHOV, G.D., kand. med.nauk, podpolkovnik meditsinskoy sluzhby;
BURENIN, P.I., kand.med.nauk, podpolkovnik meditsinskoy sluzhby;
MOROZOV, V.N., kapitan meditsinskoy sluzhby

Barotrauma of the ear following the action of air percussion wave of nuclear explosions; review of literature. Voen.-med.zhur. no.7:39-44 '64. (MIRA 18:5)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

GUSEYNOV, A.G.; NIKOLAYEV, M.N.; DOVBENKO, A.G.; KOLESOV, V.Ye.; MOROZOV, V.N.

Angular distribution of fast neutrons scattered by medium and heavy nuclei. Atom. energ. 18 no.4:409-415 Ap '65. (MIRA 18:4)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

BONDARENKO, I.I. [deceased]; LITEROV, V.G.; MOROZOV, V.N.; NIKOLAYEV, M.N.; PARFENOV, V.A.; SEMENOV, V.A.

Measurement of neutron spectra in nickel, iron, and stainless steel. Atom. energ. 18 no.6:593-601 Je '65. (MIRA 18:7)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 15033-65 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/T-2/EWP(b)/EWA(d)/EWP(t) Pab-24/Pr-4/Ps-4/Pt-10/Pu-4 AEDC(b)/AFETR/IJP(c) WH/EW/WW/JD/JG

ACCESSION NR: AP4046751 S/0226/64/000/005/0087/0091

AUTHOR: Morozov, V. N.; Semenov, Yu. N.

TITLE: Iron cermet filters for thorough purification of diesel fuel

SOURCE: Poroshkovaya metallurgiya, no. 5, 1964, 87-91

TOPIC TAGS: diesel fuel, diesel fuel purification, cermet filter, filter, diesel fuel filter, fuel filter

ABSTRACT: A study has shown that iron powder produced by grinding compacts of reduced iron oxide scale in ball mills is suitable for making high-throughput cermet filters for diesel fuel. The powder was sintered at 1100—1150C in undissociated ammonia. The effects of additional powder roller-milling and of sintering time on throughput were determined. Sintering time beyond 2 hr has no effect but roller milling raised throughput 35—50%. Successful 2460-hr field tests on a diesel engine were conducted. The slight amount of corrosion that occurred had no detrimental effect. It is estimated that the cost of mass-

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 15033-65
ACCESSION NR: AP4046751

produced cermet filters will be 1/20 to 1/25 of that of felt filters; in addition, the cermet filters will last longer in service. Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR, Zaporozhskoye otdeleniye (Institut of Problems of Materials Science, Academy of Sciences, UkrSSR, Zaporozh'ye Branch)

SUBMITTED: 27Jan63 ENCL: 00 SUB CODE: MT

NO REF SOV: 005 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 58755-65 /EPF(n)-2/EWA(h)/EWT(m) Pu-4 DM

ACCESSION NR: AP5012482 UR/0089/65/018/004/0409/0415 24
539.125.5:539.121.72 B

AUTHORS: Guseynov, A. G.; Nikolayev, M. N.; Dovbenko, A. G.; Kolesov, V. Ye; Morozov, V. N.

TITLE: Angular distribution of fast neutrons scattered by medium and heavy nuclei 19

SOURCE: Atomnaya energiya, v. 18, no. 4, 1965, 409-415

TOPIC TAGS: fast neutron scattering, heavy nucleus, medium nucleus, macroscopic cross section, scattering cross section, angular distribution

ABSTRACT: This is a continuation of earlier measurements (Atomnaya energiya v. 12, 243, 1962) of the macroscopic cross section for the scattering of neutrons in the upper group of the fission spectrum (energy $\gtrsim$ 1.5 MeV) by light nuclei. The present study is devoted to scattering by medium and heavy nuclei, namely Ti, V, Cr, Mn, Fe,

Card 1/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 58755-65

ACCESSION NR: AP5012482

Co, Ni, Cu, Zn, Br, Zr, Nb, Mo, Ag, Cd, Sb, I, Cs, Ba, W, Ir, Hg, Pb, Bi, Th, and U (natural). The measurements were made with a neutron beam 5 cm in diameter, emerging from the active zone of the BR-5 reactor. The neutron detector was a fission chamber with Th^{232}. The results are presented in the form of plots of the angular distributions of the fast neutrons scattered by the various elements. The cross sections and the coefficients of the Legendre coefficients for the differential cross sections are presented in the form of a table. The results are compared with the angular distributions calculated from the optical model of the nucleus. The agreement was found to be satisfactory for most elements. Original article has: 2 figures, 7 formulas, and 2 tables.

ASSOCIATION: None

SUBMITTED: 28Oct63 ENCL: 00 SUB CODE: NP

NR REF SOV: 006 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 52322-65 EWG(r)/EEC(k)-2/EEC(b)-2/EWA(h)/EWP(k)/EWA(k)/EWT(1)/EEC(t)/FBD/T/EWA(m)-2 Pf-4/Pi-4/Pl-4/Pm-4/Pn-4/Po-4/Peb IJP(c) WG

ACCESSION NR: AP5012604 UR/0051/65/018/005/0785/0791

AUTHOR: Morozov, V. N.; Orayevskiy, A. N.; Strakhovskiy, G. M.; Tatarenkov, V. M.

TITLE: Hyperfine structure of the inversion spectrum of $N^{15}H_3$ (line J = 3, K = 3)

SOURCE: Optika i spektroskopiya, v. 18, no. 5, 1965, 785-791

52
B

TOPIC TAGS: ammonia maser, hyperfine structure, inversion spectrum

ABSTRACT: In view of its importance in the construction of highly stable masers, the authors investigated theoretically and experimentally the hyperfine structure of the inversion spectrum of the ammonia molecule $N^{15}H_3$ (J = 3, K = 3) in the electronic ground state and vibrational states. The Hamiltonian of the molecule is determined in the Born-Oppenheimer approximation and its eigenvalues are calculated, from which the wave functions and the frequencies and relative intensities of the transitions are determined. The fine structure was also determined experimentally using as a spectroscope an underexcited maser with $N^{15}H_3$ beam. A block diagram of the set-up and a brief description of the experiment are given. The satellites observed on the photograph of the spectrum agreed within the limits of errors with the calculated transition frequencies. Orig. art. has: 3 figures, 11 formulas, and 2 tables. [02]

Card 1/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 52322-65

ACCESSION NR: AP5012604

ASSOCIATION: none

SUBMITTED: 16Apr64 ENCL: 00 SUB CODE: OP, EC

NO REF SOV: 002 OTHER: 005 ATD PRESS: 4009

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

18(5)

AUTHOR: Morozov, V.N., and Yaropolov, I. N., Engineers

TITLE: Cupola Furnace for Superheating of Cast Iron in the Fore-Hearth

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 3, p 4[illegible]

ABSTRACT: The Stalino Plant of Agricultural Machinery [illegible] designed a new installation for cupola furnaces dealing with the transfer of the gas blast into the shaft of the cupola. By this measure a better combustion of the coke, higher temperatures, and a superheating of the cast iron without expensive installations are achieved. In this manner the cast iron is heated to 1,44[illegible]° - 1.480° Celsius already during the first melting bath. By way of this novel method the rejected material and the consumption of coke have been reduced too. The rationalization of two cupola furnaces of 7 tons each brought an annual saving of 350,[illegible] rubles. The invested capital for the installation was 24,[illegible] rubles. There is 1 drawing accompanying this article. There are 1 diagram.

Card 1/1

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.N.; TYURIN, V.V.; SNEZHINSKIY, N.S.

Life of refractories in tank furnaces of direct heating. Stekl. i ker. 19 no.3:11-13 Mr '62. (MIRA 15:3)
(Glass furnaces) (Refractory materials)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.N.

Fragmental quartz from the sand formation of Lower Tortonian sediments in Chernovtsy Province. Vop. min. osad. obr. 6: 95-101 '61. (MIRA 15:6)

(Bukovina--Quartz)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

TSISHNATTI, N.T.; MOROZOV, V.N.(Tashkent)

Pneumonias under conditions of high mountain climate. Klin. med., 33 no.10:54-56 O '55. (MLRA 9:2)

(PNEUMONIA, etiology and pathogenesis
high mountain climate, prev. & ther.)
(CLIMATE
high mountains in etiol. of pneumonia, prev. & ther.)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

ASIAMAZOV, G.M.; MOROZOV, V.N.

Unsolved problems concerning factory repair of railroad cars. Zhel.dor.transp. 41 no.3:80 Mr '59. (MIRA 12:6)

1. Rabotniki vagonoremontnogo zavoda imeni S.M.Kirova, g. Ordzhonikidze.
(Railroads--Cars--Maintenance and repair)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.N. (g.Ordzhonikidze)

How to improve the performance of car axles. Zhel. dor. transp. 41 no.5:62-63 My '59. (MIRA 12:7)

1.Zamestitel' glavnogo tekhnologa Ordzhonikidzevskogo vagonoremontnogo zavoda im. Kirova.
(Car axles)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.N., inzh.

Theoretical determination of a change in the intensity of lateral earth pressure on a pile subjected to vertical loading. Sbor. nauch. trud. LISI no.37:139-146 '62. (MIRA 16:3)
(Earth pressure) (Piling (Civil engineering))

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.P., doktor tekhn.nauk

Conformal representation of an ellipsoid on a sphere. Izv.vys. ucheb.zav.; geod.i aerof. no.4:3-18 '62. (MIRA 16:2)
(Ellipsoid)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.P., inzh.; MIKHAYLOVA, M.Z., inzh.; MUSIKHIN, K.M., inzh.

Results of testing molding and forming machines used in the manufacture of peat insulating boards. Torf.prom. 37 no.4:25-27 '60. (MIRA 13:7)

1. Lengiprotorf.

(Peat machinery--Testing)
(Insulating materials)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 06239-67 EWT(1) IJP(c)

ACC NR: AP6030015 SOURCE CODE: UR/0020/66/169/005/1060/1063

AUTHOR: Tsaune, A. Ya.; Morozov, V. P.

ORG: Dnepropetrovsk Chemical-Technical Institute (Dnepropetrovskiy khimiko-tekhnologicheskiy institut)

17

B

TITLE: The calculation of anharmonicity in molecular oscillation with the use of general formulas for transition frequencies employing successive approximations

SOURCE: AN SSSR. Doklady, v. 169, no. 5, 1966, 1060-1063

TOPIC TAGS: molecular oscillator, transition frequency, anharmonicity, successive approximation method

ABSTRACT: The general formula for oscillation energy levels of a molecule has the form

$$(E_v/hc) = (E_0/hc) + \sum_s \omega_s (v_s + g_s/2) + \sum_{ss'} X_{ss'} (v_s + g_s/2)(v_{s'} + g_{s'}/2) + \sum_{t<t'} X_{t_t t_{t'}} l_t l_{t'},$$

where

$$X_{ss} = {}^1/_4 \{6k_{ssss} - 15 (k^2_{sss}/\omega_s) - \sum_{s'} (k_{sss'}/\omega_{s'}) (8\omega^2_s - 3\omega^2_{s'})/(4\omega^2_s - \omega^2_{s'})\},$$

$$X_{ss'} = {}^1/_2 \{k_{ss's'} - 6 (k_{sss}k_{ss's'}/\omega_s) - 4k^2_{sss'} [\omega_s/(4\omega^2_s - \omega^2_{s'})] - \sum_{s''} (k_{sss''}k_{s''s's'}/\omega_{s''}) - \sum_{s''} (k_{ss's''}/2) \omega_{s''} (\omega^2_{s''} - \omega^2_s - \omega^2_{s'})/[(\omega_s + \omega_{s'} + \omega_{s''})\times$$

Card 1/2

UDC: 539.194+535.338.42

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L 06239-67

ACC NR: AP6030015

$$\times (\omega_s + \omega_{s'} - \omega_{s''})(\omega_s - \omega_{s'} + \omega_{s''})(\omega_s - \omega_{s'} - \omega_{s''})]\},$$

$$X_{l_t l_t} = -{}^1/_4 \{2k_{llll} + \sum_{s'} k^2_{ll's'} [\omega_{s'}/(4\omega_l^2 - \omega_{s'}^2)]\},$$

$$X_{l_t} X_{l_{t'}} = 0,$$

The usual method used to determine the oscillation constants ω_s and $X_{ss'}$ has the defects: (a) to find the quadratic force constants in natural coordinates one must know in advance the transformation from natural to normalized coordinates; and (b) to find the oscillation constants one must know a considerable number of experimental transition frequencies. A method is set forth that is designed to remove these objections. The method is based on two principles: (1) successive approximations are used, eliminating defect (a) by normalizing coordinates in the process of the successive approximations; (2) a basic role in the method is assigned to the force constants in the formula for potential energy in natural coordinates

$$V = {}^1/_2 \sum_{ij} F_{ij} q^i q^j + \sum_{ijk} F_{ijk} q^i q^j q^k + \sum_{ijkl} F_{ijkl} q^i q^j q^k q^l.$$

This makes it possible to remove partly defect (b). Orig. art. has: 8 formulas, 3 tables.

SUB CODE: 20,12/ SUBM DATE: 20Nov65/ ORIG REF: 002/ OTH REF: 003

Card 2/2 egk

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

PROCESSES AND PROPERTIES INDEX

2

MOROZOV, V.

Thermodynamic properties of bivinyl and the equilibrium constant of the reaction of the preparation of bivinyl from alcohol. I. Godnev and V. Morozov (Karpov Inst. Phys. Chem., Moscow). *J. Phys. Chem. (U.S.S.R.)* 21, 799-809(1947)(in Russian). Equations are given for thermodynamic properties of a mixt. of two isomers, if the equil. between the isomers is known. The equations are applied to bivinyl within the range 30-120°, it is assumed that the cis form is more stable than the trans form. In spite of the contrary assumptions, the results generally agree with those of Aston, *et al.* (*C.A.* 40, 3331[7]). The cracking of RtOH to H_2O, H_2, and 1,3-butadiene is calcd.; the yield of C_4H_6 should be nearly complete at 230° and above. J. J. Bikerman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

MOROZOV, V. I.

Thermodynamic functions of ethylene oxide. I. Godnev and V. Morozov (Inst. Chem. Technol., Ivanovo). *Zhur. Fiz. Khim.* (J. Phys. Chem.) 22, 801-3(1948). Heat capacity, entropy, etc., of ethylene oxide between 25° and 727° are calcd. by using literature data on its Raman spectrum. The identification of the lines agrees with that made by Linnett, *C.A.* 33, 38[4], except that for the CH_2 rocking vibration 1379, and for the CH_2 twisting vibration 1223 cm.$^{-1}$ is set. J. J. Hikerman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

CA

General & Physical Chemistry D2

Force constants and coefficients of interaction of the formaldehyde molecule. V. P. Morozov, I. V. Vasil'chikov, A. S. Sverdlin, and I. N. Godnev (Chem.-Technol. Inst., Ivanovo). *Zhur. Fiz. Khim.* 26, 792-50(1952).—Force consts. and coeffs. of interaction are calcd. from the vibrational spectra of HCOH and DCOD. I. J. Bikerman

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V. P.

2

chem (2)

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
Electronic Phenomena and Spectra

Rule of order for nonlinear XY_2 molecules. V. P. Morozov. *Zhur. Fiz. Khim.* 27, 233-6(1953).—The general soln. has been derived for the problem of force consts. in the secular equation for vibrations of symmetry A in nonlinear triat. sym. sols. The rule of order for frequency shifts in the case of nonlinear isotopic mols. of the type XY_2 is $(m/M_1)^{1/2}\omega_i \leq \omega_i' \leq (mM_1/m_1M)^{1/2}\omega_i$, $i = 1,2$, where the symbols mean the same as in the article by Tatevskii (*C.A.* 45, 10035f (1951)). Calcd. values of ω_1 and ω_2 for D_2O and T_2O, and of ν_1 and ν_2 for D_2S and D_2Se are in good agreement with observed data.

J. W. Loweberg, Jr.

AF 7-27-54

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V. P.

Dissertation: "Application of the Method of Partial Frequencies to Calculation of Force Constants and Thermodynamic Properties of Triatomic Molecules." Cand Phys-Math Sci, Leningrad State Pedagogical Inst imeni A. I. Gertsen and the Ivanovo Chemicotechnological Inst, Ivanovo, 1953. (Referativnyy Zhurnal Khimiya, Moscow, No 10, May 1954)

SO: SUM 318, 23 Dec 1954

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

[illegible]

USSR/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical Analysis. Phase Transitions. [illegible]

Abst Journal: Referat Zhur - Khimiya, No [illegible]

Author: Morozov, V. P.

Institution: None

Title: Thermodynamic Functions of Nitrogen Dioxide

Original Periodical: Ukr. khim. zh., 1955, 21, No 5, [illegible]

Abstract: Presented are the results of calculations of S° [illegible] $-(\Phi^{\circ} - E^{\circ}_{0})/T$ and $H^{\circ} - E^{\circ}_{0}$ for NO_2 at 298.2° K and the interval 300°-1,000° K (every 100°) for ideal gas state at approximation of harmonic oscillator and rigid rotator on the basis of new data on geometric and oscillatory structure of molecules: (N - O) = 1.20 A, < O - N - O [illegible] (so that principal central moments of inertia of molecule [illegible]: $I_1 = 3.853 \cdot 10^{-40}$, $I_2 = 63.84 \cdot 10^{-40}$, $I_3 = 67.69 \cdot 10^{-40}$ g cm^2) and $\nu_1 = 1,319$ cm^{-1} (symmetric valence oscillation), $\nu_2 = 749$ cm^{-1} (symmetric deformation oscillation), $\nu_3 = 1,616$ cm^{-1} (antisymmetric valence oscillation).

Card 1/1

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V. P.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 7/21

Authors : Morozov, V. P.

Title : Calculation of zero frequencies of tri-atomic symmetrical hydrides and deuterides

Periodical : Zhur. fiz. khim. 29/10, 1804-1806, Oct 1955

Abstract : Mathematical formulas were introduced for the calculation of approximate values of zero frequencies of polyatomic molecules. The zero frequencies are explained as the basic frequencies of molecular oscillations corresponding to infinitely small amplitude values. Zero frequency values were calculated for molecules of the XY_2 type containing hydrogen or deuterium. Fifteen references: 6 USSR, 8 USA and 1 Indian (1936-1953). Tables.

Institution : Dnepropetrovsk Chimicotechnological Inst.

Submitted : January 1, 1955

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.P.

3

Force constants and action coefficients for triatomic, non-linear hydrides. V. P. Morozov (Chem.-Technol. Inst., Dnepropetrovsk). *Zhur. Fiz. Khim.* 31, 238-41(1957).—The force consts. and the action coeff. were calcd. for H_2O, D_2O, H_2S, D_2S, H_2Se, and D_2Se with equations developed earlier (*C.A.* 48, 2477*a*). The normal and the fundamental frequencies were calcd. for HDO, HDS, HDSe. J. R. L.

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

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AUTHORS: Morozova, N.K. and Morozov, V.P. SOV/51-5-5-7/23

TITLE: On the Application of the Spectroscopic Mass Method to Determination of the Vibrational Frequencies of Isotopic Molecules (O primenenii metoda spektroskopicheskikh mass pri opredelenii kolebatel'nykh chastot izotopicheskikh molekul)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 5, pp 535-541 (USSR)

ABSTRACT: The method of spectroscopic masses (Ref 2), used for approximate calculation of anharmonicity of vibrations of multi-atomic molecules containing hydrogen or deuterium, is very simple and convenient (Refs 3-10) but it gives very rough results especially in calculation of deformational frequencies. In the present paper the spectroscopic mass method is applied to determination of frequencies of AY_2 and AY_3 molecules, where Y = H or D. The method of Pitevskiy (Ref 11) and the method of partial frequencies (Ref 12) give the following relationship for these molecules: $\omega_i'/\omega_i = \rho_i (M, m, m_1, \gamma)$, where ω_i and ω_i' are the zero frequencies (the terms zero frequencies and fundamental frequencies are used in the sense of Ref 1) of molecules AH_n and AD_n respectively, M is the mass of the central atom, m and m_1 are the hydrogen and deuterium masses and γ is the valence angle. If the

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SOV/51-5-6-7/23

On the Application of the Spectroscopic Mass Method to Determination of the Vibrational Frequencies of Isotopic Molecules

mass m = 1.0081 is replaced by the spectroscopic hydrogen mass $\bar{m}$ = 1.088 and if the mass m_1 = 2.0147 is replaced by the spectroscopic deuterium mass $\bar{m}_1$ = 2.126, then the above relationship may be written as $\nu_i'/\nu_i = \bar{\beta}_i(M, \bar{m}, \bar{m}_1, \gamma)$. The above approximate equation makes it possible to determine the fundamental frequencies ν_i' of deutero-derivatives if the fundamental frequencies ν_i of the original molecules are known. The above two relationships are more complicated if molecular symmetry changes on deuteration. The authors discuss first triatomic hydrides and deuterides of AY_2 type, where Y = H or D. Table 1 lists the fundamental frequencies of nine such molecules: H_2O, D_2O, H_2S, D_2S, H_2Se, D_2Se, HDO, HDS, HDSe. Lines I in Table 1 give the results of calculations using spectroscopic masses H = 1.088 and D = 2.126. Lines II give the values calculated using non-spectroscopic masses. New spectroscopic masses H = 1.00975 and D = 2.1410 were used to calculate the values in lines III. Lines IV represent values taken from V.P. Morozov's earlier work (Ref 20). The authors deal also with pyramidal hydrides and deuterides of AY_3 type where Y = H or D. The fundamental and the zero frequencies of eight such molecules (NH_3, ND_3, PH_3, PD_3, AsH_3, AsD_3, SbH_3, SbD_3, are given in Tables 2 and 3

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SOV/51-5-5-7/23

On the Application of the Spectroscopic Mass Method to Determination of the Vibrational Frequencies of Isotopic Molecules

respectively. Lines I and II in Table 2 represent results of calculations using spectroscopic masses H = 1.088 and D = 2.0147 (line I) and H = 1.0975 and D = 2.1410 (line II). Unnumbered lines in Tables 1 and 2 represent values taken from Refs 13-21, 23-28, listed in the last column of these tables. In Table 3 the third, fourth and sixth columns list three variants of values calculated by the present authors, while the eighth column gives the results obtained by the other authors. The fifth, seventh and ninth columns give the differences between the results of the fourth, sixth and eighth columns and those of column 3. From the results obtained the authors deduce improved values of certain fundamental frequencies of the D_2S, HDS, ND_3 and PD_3 molecules. The authors thank I.N. Godnev for valuable discussions. There are 3 tables and 29 references, 13 of which are American, 12 Soviet, 1 Indian, 1 English, 1 French and 1 translation.

SUBMITTED: December 27, 1957

Card 3/3

1 Molecules--Vibration 2 Mass spectrum analysis 3. Mathematics

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

AUTHOR: Morozov, V.P. SOV/51-5-6-11/19

TITLE: The Rules of Averages for Triatomic Non-Linear Hydrides and Deuterides (Pravila srednikh dlya trekhatomnykh nelineynykh gidridov i deyteridov)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 6, pp 699-702 (USSR)

ABSTRACT: The natural zero approximation introduced by Yol'yashevich and Stepanov (Ref 1) makes it possible to determine the approximate values of the frequencies of vibrations of molecules when the non-diagonal coefficients of total interaction are small. The author shows that if these coefficients are small simple relationships may be established between the frequencies of vibrations of triatomic non-linear hydrides (RH_2) and the corresponding frequencies of their deuterated derivatives (RHD and RD_2). It is found that both the zero and the fundamental frequencies (as defined in Ref 2) of RHD molecules are the arithmetic means of the corresponding vibration frequencies (zero or fundamental) of RH_2 and RD_2 molecules. It is also found that the zero and the fundamental frequencies of monodeuterides may be represented as geometric means of the corresponding frequencies of hydrides and

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SOV/51-5-6-11/19

The Rules of Averages for Triatomic Non-Linear Hydrides and Deuterides

dideuterides. These relations (given by Eqs. 14, 16, 18 and 22) are called the rules of averages. These rules make it possible to calculate simply the values of the zero and fundamental vibrational frequencies of non-linear RHD molecules if the corresponding frequencies of RH_2 and RD_2 molecules are known. The results of such calculations are given in a table on p 702 for HDO, HDS and HDSe. Line 1 in each case gives the known calculated and experimental values of the zero and fundamental frequencies (taken from Refs 2, 3). Lines 2 and 3 give approximate values calculated from the arithmetic and geometric means respectively. This table shows that the arithmetic and geometric means give very accurate values of the valence frequencies; for deformation frequencies agreement between the values calculated by the rules of averages and other values is much poorer. There are 1 table and 3 Soviet references.

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Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

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MOROZOV, V.P.

Calculation of the zero-point frequencies of diatomic hydrides and deutrides. Trudy DKHTI no.6:51-52 '58. (MIRA 13:11)
(Hydrides--Spectra)

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MOROZOV, V.P.

Distr: 4E4j/4E3d/4E4c/4E3c

Thermodynamic functions of pyramidal molecules. Hydrides and deuterides of the elements of Group V. V. N. Khlebnikova and V. P. Morozov (Chem.-Technol. Inst., Dnepropetrovsk). *Zhurn. Khim. Zhur.* 24, 3-6(1958)(in Russian).—Tables of heat capacity at const. pressure, entropy, reduced isobaric-isothermal potential $-(\phi^\circ - H_0^\circ)/T$, and reduced enthalpy $(H^\circ - H_0^\circ)/T$, calcd. by statistical methods, are given for MH_3 and MD_3 (M = N, P, As, and Sb) at 100° intervals from 300 to 1000°K. and at 298.2°K.

John Howe Scott

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

AUTHOR: Morozov, V.P. SOV/51-7-3-2[illegible]

TITLE: Partial Frequencies of Triatomic Hydrides and Deuterides of C_{2v} Symmetry.

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 3, pp 289-293 (USSR)

ABSTRACT: The concept of partial frequency was introduced by Mandel'shtam (Refs 2, 3, and it can be formulated as follows. Let a system have n vibrational degrees of freedom which can be represented by generalized coordinates $q_1, q_2, \ldots, q_n$. The partial frequency $\tilde{\omega}_i$ is then the frequency of a vibration which occurs when

$$q_1 = \ldots = q_{i-1} = q_{i+1} = \ldots = q_n = 0 \quad \text{and} \quad q_i \neq 0,$$

that is when only the i-th degree of freedom is effective. The method of partial frequencies can be used to solve the following problems in the theory of molecular vibrations: (a) to find the fundamental frequencies in the zero approximation; (b) to find the force constants and the induction coefficients in the zero approximation; (c) to establish approximate relationships between the frequencies of isotopic modifications. The author applied the partial frequency method to triatomic non-linear symmetric hydrides and deuterides H_2O, D_2O, H_2S, D_2S, H_2Se and D_2Se. The author shows that the partial valence (Eqs. 3, 7) and deformational (Eqs 4, 8) vibration frequencies can be regarded as the zero approximation

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to the fundamental frequencies. This form of the zero approximation has the advantage that it does not require the knowledge of the values of all the dynamic coefficients. Table 1 shows, however, that the partial-frequency method of calculating the fundamental frequencies gives slightly poorer results than the "natural zero approximation" introduced by Yel'yashevich and Stepanov (Ref 1). The author deduces also Eqs (12) and (14) which give the zero approximation to the induction coefficients U. The zero approximation to the force constants V can be obtained similarly. Table 2 shows the known values (col 3) of the force constants and induction coefficients of H_2O, H_2S and H_2Se together with the values of these dynamic coefficients obtained by the variants of the partial-frequency method (cols 5 and 7). In general the dynamic coefficient values obtained by means of the zero approximation of the partial-frequency method lie within the limits of error of known values of these coefficients. The method of partial frequencies can be used also to obtain relationships between the frequencies of isotopic modifications. Hence the frequencies of the deuterated molecules can be deduced from the frequencies of the hydrides. Table 3 lists the .

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SOV/51-7-3-2 [illegible]

[illegible]rtial Frequencies of Triatomic Hydrides and Deuterides of C_{2v} Symmetry

known values (col 3) of the zero frequencies of D_2O, D_2S and D_2Se and the values calculated using the approximate formulae of Tatevskiy (ref 11, as well as those obtained by the author using the relationships educed by means of the partial-frequency method. Table 3 shows that the partial-frequency method (cols 4, 5) gives results as good as those b[illegible]ined using Tatevskiy's formulae (col 6). Acknowledgments are made to I.N. Godnev and [illegible]. Yel'yashevich for their advice. There are [illegible] tables and 11 references, 9 of which are Soviet and 2 English.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

S/139/60/000/01/036/041
E032/E314

AUTHORS Khlebnikova V.N., Morozova [illegible] and Morozov V.P.

TITLE: Determination of the Errors Involved in the Calculation of Thermodynamic Functions on the Harmonic Oscillator Approximation

PERIODICAL Izvestiya vysshikh uchebnykh zavedeniy Fizika 1960 Nr 1 pp 217 - 221 (USSR)

ABSTRACT: A simple method is reported for the rapid determination of the errors involved in the calculation of the thermodynamic functions of the harmonic oscillator. The discussion is based on Eqs (1)-(3), which give vibrational components of the specific heat, the reduced internal energy and the reduced free energy.
In these equations $x_1 = hc\nu_1/kT$ and ν_1 is in cm^{-1}.
Since the analysis is analogous for all the functions the specific heat is taken as an example. It follows from Eq (1) that the magnitude of the specific heat is determined by two kinds of quantities: 1) the physical constants h, k, c, R and 2) the independent variable ν/T. The values of the physical constants

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E0[illegible]/E1[illegible]

Determination of the Errors Involved in the Calculation of Thermodynamic Functions on the Harmonic Oscillator Approximation

are available in the literature and are periodically reviewed. Table 1 gives a summary of two successive determinations of the above four constants. The second column gives the 1951 values and the third the 1956 value (Refs 2, 5). The last column gives the differences. The latter differences are all greater than the errors indicated by Du Mond and Cohen (Ref 2, Col 2, Table 1). The present authors argue that it is these differences which must be used to determine the error in this specific heat as given by Eq (1). Thus, the error in the specific heat due to the error in Planck's constant is given by Eq (4), from which it is clear that the error is a function of ν/T. Using the notation given by Eq (5), the authors seek the conditions for which the function $f(y)$ is an extremum. The derivative of $f(y)$ vanishes when Eq (6) is satisfied. On expanding the exponentials in Eq (6) into series, the latter equation may be rewritten in the form given by Eq (7). All the coefficients in Eq (7) are positive except for the first which is negative

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E032/E314

Determination of the Errors Involved in the Calculation of Thermodynamic Functions on the Harmonic Oscillator Approximation

Thus the equation has not more than one positive root. The positive root can be found by successive approximations and it is found that the root is in fact 3.49. The analysis leads to results which are summarised in Table 3, in which all the values in the columns marked "maximum" should be multiplied by 10^{-4} and all the numbers in the columns marked "minimum" should be multiplied by 10^{-8} (the first row refers to the specific heat, the second to the internal energy and the third to the free energy, Eqs (1)-(3)). This table shows that the error in the thermodynamic functions due to errors in the physical constants is negligible. Next, an estimate is made of the effect of the spectrum optic error $\Delta\nu$ on the above functions. The corresponding error in the specific heat is given by Eq (8). Using the notation of Eq (9), the error in the specific heat can be written in the form given by Eq (10). The errors in the two

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EC[illegible]/E[illegible]1

Determination of the Errors Involved in the Calculation of Thermodynamic Functions on the Harmonic Oscillator Approximation

other functions can be written in the form given by Eq (11) - Eq (1[illegible]). Figures 1, 2 and [illegible] give plots of Z, H and Θ as functions of ν/T. These graphs may be used to calculate the errors in the thermodynamic functions due to $\Delta\nu$. The error in the entropy is then given by Eq (1[illegible]). In Figures 1, 2 and [illegible] ν is in cm^{-1} and T in degrees. [illegible] Godney is thanked for valuable discussion.
There are [illegible] figures, 2 tables and [illegible] references, of which 3 are Soviet and [illegible] English. [illegible] of the Soviet references is translated from English.

ASSOCIATION Dnepropetrovskiy khimiko tekhnologicheskiy institut (Dnepropetrovsk Chemico technological Institute)

SUBMITTED January [illegible] 195[illegible]

Card 4/4

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

RYBAKOVA, G.I.; KOVAL'CHUK, D.S.; MOROZOV, V.P.

Force constants and interaction coefficients of pyramidal hydrides. Opt.i spektr. 9 no.1:34-39 Jl '60. (MIRA 13:7)

(Hydrides—Spectra)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

RYBAKOVA, G.I.; NAUGOL'NIKOV, B.I.; MOROZOV, V.P.

Partial frequencies of pyramidal hydrides and deuterides with C_3 symmetry. Opt. i spektr. 9 no.2:166-169 Ag '60. (MIRA 13:8)
(Hydrides)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

RYBAKOVA, G.I.; MOROZOV, V.P.

Rules of averages for valence frequencies of pyramidal and tetrahedral hydrides and deuterides. Izv.vys.ucheb.zav.; fiz. no.5:109-114 '61. (MIRA 14:10)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut imeni F.E.Dzerzhinskogo.
(Molecular dynamics) (Hydrides)

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KOVALENKO, N.F.; NAUGOL'NIKOV, B.I. [deceased]; MOROZOV, V.P.

Interrelation between the extension factors and equilibrium lengths of valence bonds in diatomic molecules. Izv.vys.ucheb. zav.; fiz. no.5:171-174 '61. (MIRA 14:10)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut imeni F.E.Dzerzhinskogo.
(Molecular dynamics)

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MOROZOV, V.P.; RYBAKOVA, H.I. [Rybakova, H.I.]; NAUGOL'NIKOV, B.I. [Nauhol'nikov, B.I.]; KHLEBNIKOVA, V.N.; [Khliebnikova, V.M.]; MOROZOVA, N.K. [Morozova, N.K.]; KOVAL'CHUK, D.S.

Some problems in the theory of vibrational spectra. Ukr.fiz.zhur. 6 no.6:728-730 N-D '61. (MIRA 16:5)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.
(Molecular spectra)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

KHLEBNIKOVA, V.N.; MOROZOV, V.P.

Thermodynamic functions of pyramidal molecules. Ukr. khim. zhur. 27 no.4:550-551 '61. (MIRA 14:7)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.
(Hydrides--Thermal properties) (Spectrum, Molecular)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 11257-63
ACCESSION NR: AP3000607 S/0181/63/005/005/1316/1319

AUTHOR: Khlebnikova, V. N.; Morozov, V. P. 44

TITLE: A comparative study of the force constants of ammonia in the crystalline, liquid, and gaseous states

SOURCE: Fizika tverdogo tela, v. 5, no. 5, 1963, 1316-1319

TOPIC TAGS: force constants, spectroscopic mass, ammonia, hydrogen, deuterium

ABSTRACT: The authors have computed the dynamic constants for ammonia in the crystalline, liquid, and gaseous states, using Formula (1). The results obtained are shown in Table 1. A comparison of these constants shows highly systematic behavior for the values (liquid) obtained while using values for spectroscopic masses of hydrogen and deuterium in crystalline ammonia. The comparison also shows that the force constants k sub q and k sub a decrease during transition from gas to liquid to crystal state, and this corresponds to a decrease in the valence bond of N-H and a decrease in the valence-bond angle in H-N-H. "In conclusion we wish to express deep thanks to I. V. Obreimov for his valuable comments during discussions of this work." Orig. art. has: 2 formulas and 3 tables.

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SEVER'YANOV, [illegible], A.[illegible],
retsenzent, [illegible]
[illegible]
retsenzent; [illegible]
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[illegible], retsenzent; [illegible]
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YEGOROV, Yu.P.; [illegible]

Spectroscopic properties [illegible]
"Ukr.khim.zhur. 31 no.[illegible] [illegible].

1. Institut khimii vysokomolekulyarnykh [illegible]
i Dnepropetrovskiy khimiko-tekhnologicheskiy [illegible].

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KOVALEVSKIY, D.S.; [illegible]

Fundamental frequencies of deuterium and tritium substitutes of tetrahedral hydrides. Ukr. fiz. zhur. [illegible]

.. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.

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MOROZOV, V.I. pr[illegible]

G.V. Bagrat[illegible]
Izv. vys[illegible]

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MOROZOVA, N.K.; MOROZOV, V.P.

Reduction to a cellular-diagonal form of the matrices of operators commutable with a group of symmetry operators. Dokl. AN SSSR [illegible] no.4:817-820 Ap '65. (MIRA 18:5)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut im. F.E. Dzerzhinskogo. Submitted October 11, 1964.

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MOROZOV, V.P.

Device [illegible]

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MOROZOV, V.P.

Vibrometric investigation of the vocal function in singers. Vest. LGU 14 no.15:110-126 '59. (MIRA 14:4)
(Voice) (Vibration)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.P.

Role of the sense of vibration in functional regulation of the human voice. Vest. LGU 15 no.3:174-178 '60. (MIRA 13:1)
(Voice)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV. V.P.; RAZVARIN, A.M.

Effect of noise on vocal and motor functions in singers. Vest. LGU 15 no.9:137-142 '60. (MIRA 13:4)
(NOISE—PHYSIOLOGICAL EFFECT) (SINGING)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

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L 16308-65 EWT(1) IJP(c)

ACCESSION NR: AR5012230 UR/0058/65/000/003/D014/D014

SOURCE: Ref. zh. Fizika, Abs. 3D89 13

AUTHOR: Morozov, V. P.; Kovalev, I.F.; Tsaune, A. Ya.; Khlebnikova, V.N.; Kvasha, N.T.; Koval'chuk, D. S.

TITLE: Calculation of vibrational spectra of simple molecules with account of unharmonicity 21

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 170-175

TOPIC TAGS: vibrational spectrum, anharmonicity, electro-optical parameter, force constant, infrared intensity

TRANSLATION: Methods of quantum mechanics are used to justify linear classical methods accounting for anharmonicity. A derivation is given for three variants of formulas for the calculation of the electro-optical parameters of molecules of the type XY_3Z_3 and XY_3Z. The force constants, the vibrational frequencies, the forms of oscillations, the electro-optical parameters, and the intensities are calculated for the infrared spectra of hydrides of the type XH_3, YH_3,

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L 46308-65

ACCESSION NR: AR5012230 0

ZH_4 and their deuterium and tritium modifications by the zero-frequency and spectroscopic-mass method.

SUB CODE: GP, OP ENCL: 00

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MORCZOV, V.P.

Methodology for simultaneously recording respiratory [illegible] and speech sounds on the same magnetic tape. [illegible] no.6:762-764 Je '64. (MIRA 18:[illegible])

1. Gruppa fiziologicheskoy akustiki Instituta [illegible] fiziologii imeni Sechenova AN SSSR, Leningrad.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, Vitaliy Panteleymonovich; [illegible], V.S., spetsr. red.;
GODINER, F.Ye., red.

[Radio-amateur transistor testing devices] Radiolubitel'skie pribory dlia proverki tranzistorov. Moskva, Izd-vo DOSAAF, 1965. 58 p. [illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

ROSSIKHIN, V.V.; MOROZOV, V.P.

Use of the electrostatic method for calculating the bond energy of H_2^+, H_2, and Li_2 molecules and the force constant of H_2 and Li_2 molecules. Zhur. struk. khim. 6 no.3:443-446 My-Je '65.

(MIRA 18:8)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

TSAUNE, A.Ya.; MOROZOV, V.P.

Use of effective kinematic coefficients in determining the anharmonicity in molecular vibrations. Opt. i spektr. 19 no.2:186-193 Ag '65. (MIRA 18:8)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

KHLEBNIKOVA, V.N. [Khlebnikova, V.N.]; MOROZOV, V.P.

Application of the method of spectroscopic masses for the calculation of the force constants of pyramidal hydrides. Dop. AN URSR no.[illegible] (MIRA [illegible])

1. Dnepropetrovsky khimiko-tekhnologicheskiy institut. Predstavlena akademikom AN UkrSSR A.I. Brodskim [Brods'kyi, A.I.].

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 63566-65 EWT(m)/EPF(c)/EPR Pr-4/Ps-4 RPL WW/JW

ACCESSION NR: AP5014153 UR/0080/65/038/005/0961/0966
661.56

23
22
B

AUTHOR: Ganz, S. N.; Morozov, V. S.; Vashkevich, A. M.

TITLE: Preparation of highly concentrated nitric acid in a closed circulation system

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 5, 1965, 961-966

TOPIC TAGS: nitric acid, concentrated acid, nitric acid technology

ABSTRACT: A method for preparation of nitric acid of 65% and higher concentration in a closed circulation system was developed. The production system can be upscaled to commercial size. The method consists essentially of obtaining a 75 to 80% mixture of nitrogen oxides ($NO + NO_2$). To this end an ammonia-oxygen mixture is combined with a tail gas containing 8 to 12% of $NO + NO_2$ and heated to 320-350°C prior to entering the oxidation reactor. After oxidation the gas contains 20 to 28% of nitrogen oxides. Subsequently the gas is cooled and absorbed in water or weak nitric acid in a mechanical apparatus provided with an internal cooling system. Under these conditions defixation of the nitric oxides is minimal (approx. 1%). At

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L 63566-65

ACCESSION NR: AP5014153

the outlet from the absorption apparatus the nitric acid concentration reaches 64 to 65%. The tail gas from the absorption apparatus is passed through a nitrogen oxide recovery system. In this recovery system the inert gases accumulating in the tail gas are isolated at 4 to 5% per pass. Orig. art. has: 9 figures.

ASSOCIATION: Dniepropetrovskiy khimiko-tekhnologicheskiy institut (Dniepropetrovsk Institute of Chemical Technology)

SUBMITTED: 25Mar63 INCL: 00 SUB CODE: IE, GC

NO REF SOV: 001 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.S.; ANTIPOV, V.V.; DAVYDOV, B.I.; DOBROV, N.N.; SAKSONOV, P.P.; SHASHKOV, V.S.

Experimental study of the biological effect of cosmic rays under conditions simulating the occurrence of solar flares on the earth - moon trajectory. Kosm.issl. 3 no.2:325-329 Mr-Ap '65. (MIRA 18:4)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 38560-65 EWG(j)/EWG(r)/EWT(1)/EWT(m)/FS(v)-3/EWG(v)/FCC/EEC-4/EEC(t)/T/EWG(a)-2/EWG(c)/EWA(h) Po-4/Pe-5/Pq-4/Pae-2/Peb/Pi-4 IJP(c) DD/RD/GW-2

ACCESSION NR: AP5009651 UR/0293/65/003/002/0325/0329

73

B

AUTHOR: Morozov, V. S.; Antipov, V. V.; Davydov, B. I.; Dobrov, N. N.; Saksonov, P. P.; Shashkov, V. S.

TITLE: The biological effect of cosmic radiation under conditions of onset of solar flares on the Earth-Moon route in model experiments

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 2, 1965, 325-329

TOPIC TAGS: cosmic radiation, biological effect, solar flare, solar flare model, gamma ray, Co^{60}, mouse, radioprotector, radiation drug, lunar trajectory

ABSTRACT: The possibility of modeling the biological effect of ionizing radiation during short solar flare on a lunar spaceflight (7—10 days) is demonstrated in preliminary experiments. Co^{60} is used as the radiation source bacause it has an equivalent RBE to a flow of protons, which cannot at present be simulated in the laboratory. Male white mice in a compartmented biological unit were supplied with special food concentrate and water for 5 days prior to irradiation by a dose of 900 r distributed to simulate solar flare in space flight. A second group on the same diet were exposed to an acute dose of 900 r in plexiglas cages. The number of deaths in 30 days was the same in both cases (75%). A third group, fed a normal

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L 38560-65

ACCESSION NR: AP5009651

diet and also irradiated in plexiglas cages, had a 90% mortality rate in the same period of time. Pharmacologic and chemical defenses from the effect of radiation did not differ in principle in the model of simulated solar flare and under normal (i.e., acute) conditions of irradiation. Results of the experiment will be the subject of a further report. Orig. art. has: 3 figures and 2 tables. [JS]

ASSOCIATION: none

SUBMITTED: 01Dec64 ENCL: 00 SUB CODE: LS, AM

NO REF SOV: 004 OTHER: 006 ATD PRESS: 3225

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

ACCESSION NR: AT4042646 S/0000/63/000/000/0023/0026

AUTHOR: Antipov, V. V.; Vy*sotskiy, V. G.; Davy*dov, B. I.; Dobrov, N. N.; Morozov, V. S.; Murin, G. F.; Nikitin, M. D.; Saksonov, P. P.

TITLE: Some problems in providing radiation safety in space flight

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 23-26

TOPIC TAGS: radiation safety, space flight, spaceflight factors, cosmic radiation effect, vibration, acceleration, radiation protection, dosimetric control, biological dosimeter, solar flare, antiradiation drug/RBE

ABSTRACT: Although protons are an important component of primary cosmic radiation, experimental data on their biological action under space conditions and their RBE compared with x-rays and gamma-rays are lacking. It has been established that the RBE of protons with energies in excess of 100 Mev (LD_{50} for rodents) is a little less than one. However, the data on which this figure is based were obtained with various particle accelerators of high-dose power and pulsed radiation,

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ACCESSION NR: AT4042646

conditions not found in space. The RBE of alpha-particles and high-energy nuclei of the heavier elements has been estimated as lying between 2 and 10. Laboratory verification with animals is unfortunately impossible, since sufficiently powerful accelerators do not exist. The combined effect of radiation and other space-flight factors (vibration, acceleration, modified atmosphere, etc.) is another important area where few experimental data are available. It is necessary to know in what ways and to what extent cosmic radiation contributes to the total effect of space flight on the human body, and what is the qualitative and quantitative influence of other space-flight factors on the biological effect of radiation, in order to formulate scientifically-based antiradiation drugs and safety measures. Experiments have shown that the development of radiation damage is modified by acceleration and vibration, the effect depending on when and in what sequence these factors occur. Animals subjected to vibration and acceleration 5 to 7 days after irradiation showed a poorer tolerance to these factors than nonirradiated animals. In addition, the vibration and acceleration aggravated the course of the radiation sickness. Vibration and acceleration prior to irradiation not only failed to aggravate radiation sickness, but even somewhat abated its severity. Without experimental data on RBE and the combined effects of spaceflight factors, permissible levels of radiation cannot be scientifically established. A conditional

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ACCESSION NR: AT4042646

permissible dose of 25 ber (biological equivalent roentgen) has been set, but is subject to revision upward or downward as actual data on the effect of various cosmic radiation components and the effectiveness of antiradiation measures are accumulated. The ideal type of radiation protection would be mechanical shielding (i. e., an actual screen of lead or some other material) but this is technologically impossible at present. The majority of chemical antiradiation agents cannot be used under space-flight conditions. Since radiation effects are not confined to humans, not only the crew members but the whole spaceship biocomplex (plants, animals on board, etc.) must be protected lest the equilibrium of the closed ecology be upset by hereditary or other effects. Basic elements of a radiation safety system for spacecraft will be: 1) dependable dosimetric control of the radiation level in the spaceship cabin by means of ship, individual, and biological dosimeters; 2) scientific forecasting of radiation conditions in space, especially solar chromoshpheric flares; and 3) effective pharmacological and biological agents for protection against the harmful effects of cosmic radiation.

ASSOCIATION: none

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V.S.; SHASHKOV, V.S., LAVYDOV, B.I.; ANTIPOV, V.V., SAKSONOV, P.P.; DOBROV, N.N.

Modeling radiation conditions during solar flares on the trajectory of the flight around the moon. Probl. kosm. biol. 4:701-708 '65. (MIRA 18:9)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 64117-65 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EWP(j)/EWA(c) RPL WW/JW/RM/WH

ACCESSION NR: AP5021149 UR/0386/65/002/001/0041/0045

AUTHOR: Mash, D. I.; Morozov, V. V.; Starunov, V. S.; Fabelinskiy, I. L.

TITLE: Stimulated scattering of the Rayleigh line wing

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 1, 1965, 41-45, and insert B at rear of journal

TOPIC TAGS: nonlinear optics, stimulated scattering, Rayleigh line wing, line wing scattering, ruby laser, laser induced scattering, carbon disulfide, benzene, toluene, nitrobenzene, acetic acid, salol, triacetin

ABSTRACT: The discovery of a new effect, the stimulated scattering of the Rayleigh line wing, is reported. The new phenomenon was investigated in carbon disulfide, benzene, nitrobenzene, toluene, acetic acid, salol, and triacetin, which were excited by a pulsed (~100 Mw), Q-modulated ruby laser (see Fig. 1 of the Enclosure). The Q-switch consisted of two containers C_1 and C_2, each 1 cm thick

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ACCESSION NR: AP5021149

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and filled with a 1.8×10^{-6} M solution of cryptocyanine in methyl alcohol. The effect was observed in carbon disulfide and nitrobenzene at room temperature and in salol at 170C. Under identical conditions, the same effect was not observed in the remaining liquids, although stimulated Brillouin scattering was observed in all of the liquids, with the exception of tracetin. In nitrobenzene, salol, and carbon disulfide the stimulated Rayleigh line wing exhibited a distinct threshold. The existence of this threshold, a scattering intensity comparable to the excitation intensity, the presence of the intensity maximum in a wing, and the absence of the anti-Stokes wing, all point to the occurrence of the new effect. Orig. art. has: 2 formulas and 3 figures. [YK]

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

44

SUBMITTED: 22May65 ENCL: 01 SUB CODE: EC, NP

NO REF SOV: 003 OTHER: 002 ATD PRESS: 4070

Card 2/3

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 64117-65

ACCESSION NR: AP5021149 ENCLOSURE: 01

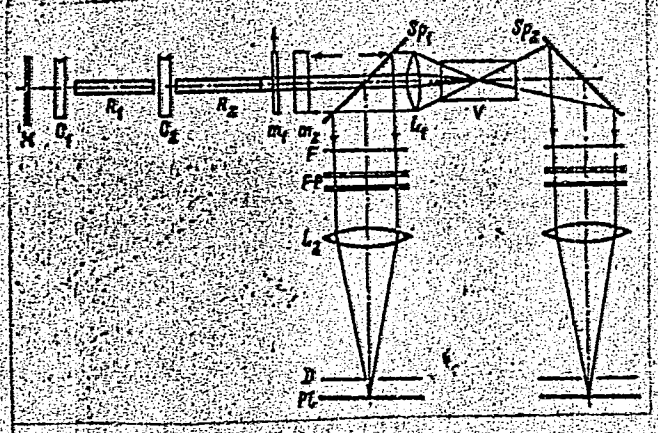

Fig. 1. Experimental apparatus

M - mirror (R = 100%); R_1, R_2 - ruby rods each 12 cm long and 1.2 cm in diameter; m_1, m_2 - plane-parallel plates; Sp_1, Sp_2 - glass plate separators; L_1 - lens (f - 3 cm); L_2 - lens (f - 120 cm).

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

8(0) SOV/112-59-1-667

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1, p 88 (USSR)

AUTHOR: Morozov, V. S.

TITLE: Prospects for Developing the Electrification of Agriculture in the Leningrad Oblast

PERIODICAL: Tr. nauchno-tekhn. soveshchaniya po vopr. primeneniya elektr. energii v s. kh. L., 1956, pp 12-15

ABSTRACT: Within the next 5-10 years, the total demand of the Leningrad oblast agriculture would amount to about 44 Mw and the annual energy consumption to 133.7 million kwh. The Lenenergo power system is assigned to be the major source of electrical supply to agriculture (86%). Thirty-four small hydroelectric generating stations will cover 14% of the demand. All small hydro stations will operate in parallel with the Lenenergo system. Most hydrostations are in existence now, the rest are under construction. Further construction of small hydrostations is not envisaged for the immediate future.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

ROCHEV, N.N., glav. red.; VAVILOV, P.P., red.; VERTEL', E.I., red.; GORELIK, A.I., red.; GUZMAN, I.S., red.; KUZNETSOV, G.N., red.; MEDVEDEV, G.A., red.; MODYANOV, Ya.V., red.; PANTELEYEVA, A.A., red.; POLYAKOV, V.V., red.; POPOV, S.A., red.; POPOVA, S.M., red.; RAYENSKIY, S.S., red.; RUDAKOV, S.V., red.; SYUTKIN, A.F., red.; USOV, A.I., red.; USTINOVA, I.K., red.; SHKIL', P.T., red.; CHEBYKIN, N.P., red.; MEZENTSEV, S.A., red.; MOROZOV, V.S., red.; OPLESNIN, I.I., tekhn. red.

[Forty years of the Komi A.S.S.R., 1921-1961; studies on the cultural and economic development of the Komi Republic]40 let Komi ASSR, 1921-1961; ocherki o razvitii ekonomiki i kul'tury Komi Respubliki. Syktyvkar, Komi knizhnoe izd-vo, 1961. 154 p. (MIRA 14:11)
(Komi A.S.S.R.--Economic conditions) (Komi A.S.S.R.--Culture)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

ACCESSION NR: AP4043503 S/0293/64/002/004/0641/0647

AUTHOR: Snashkov, V. S.; Saksonov, P. P.; Antipov, V. V.; Morozov, V. S.; Murin, G. F.; Razgovorov, B. L.; Suvorov, N. N.; Fedoseyev, V. M.

TITLE: Effectiveness of pharmacological and chemical protection under conditions of gamma radiation and protons with energies of 660 and 120 Mev

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 4, 1964, 641-647

TOPIC TAGS: radiation protection, pharmacology, chemistry, radioprotective pharmaceutical, radioprotective chemical, gamma radiation, proton, corpuscular radiation

ABSTRACT: The comparative effects of gamma and corpuscular radiation were studied using 1360 white mice. In each of three tests, the protective influence of AET, mercamine, serotonine, 5-methoxytryptamine, tryptamine, and 5-oxytryptophane was tested. Experimental animals were compared with irradiated controls (mice not given protective agents) and biological controls (mice under normal conditions). In the first test, 240 mice were irradiated with an 850-r(DL_{100}) dose of cobalt-60 gamma rays. All irradiated controls perished. Of those administered radioprotective agents, mice given AET (150 mg/kg),

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ACCESSION NR: AP4043503

5-methoxytryptamine (75 mg/kg), serotonine (50 mg/kg), and mercamine (150 mg/kg) showed significantly greater viability and longer mean longevity than mice given tryptamine (100 mg/kg) and 5-oxytryptophane (250 mg/kg). In the second test, 400 mice received 660 Mev corpuscular radiation with protons in an 1178-rad (DL_{100}) dose. Of 160 irradiated controls, only 3 survived for 30 days. Of mice administered radioprotectors, those given AET and 5-methoxytryptamine showed the greatest survival. Mercamine and serotonine exerted the same protective influence as in the test with gamma rays. In other investigations, AET has been shown to be an effective protective agent even during 1600 rad of absolutely lethal proton radiation. In the third test, 220 mice received 1200—100 rad (DL_{100}) doses of 120 Mev protons. Of 60 irradiated controls, 2 survived for 30 days. The protective influence of AET, serotonine, mercamine, and 5-methoxytryptamine was preserved in this test. Finally, it was concluded that the relative biological effectiveness of 660 and 120 Mev protons was 75% that of gamma rays. Orig. art. has: 4 tables.

ASSOCIATION: None

Card 2/3

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

ACCESSION NR: AP4043503

SUBMITTED: 17Feb64 ATD PRESS: 3093 ENCL: 00

SUB CODE: LS, OC NO REF SOV: 019 OTHER: 021

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

MOROZOV, V. S., SAKSONOV, P. P., ANTIPOV, V. V., SHASHKOV, V. S.,
RAZGOVOROV, B. L., MURIN, S. F.,

"On the Biological Effect of High-Energy Protons"

report submitted for the 14th Intl. Astronautical Federation (IAF) Congress,
Bioastronautics Committee, Paris, France, 25 Sept-1 Oct 6

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

SHASHKOV, V.S.; SAKSONOV, [illegible]; ANTIPOV, V.V.; MOROZOV, V.S.; [illegible], G.F.; RAZGOVOROV, [illegible]; [illegible], N.N.; [illegible], V.M.

Efficiency of a pharmacochemical protection against gamma irradiation and irradiation by protons with an energy 660 and [illegible] Mev. Kosm. issl. 2 no.4:641-647 [illegible]-Ag '64. [illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 53048-65 EWG(j)/EWT(m)
ACCESSION NR: AP5014896 UR/0020/65/162/003/0688/0690

AUTHOR: Sakanov, P. P.; Antipov, V. V.; Shashkov, V. S.; Razgovorov, B. L.; Marin, G. F.; Morozov, V. S.

TITLE: The biological effect of high-energy protons

SOURCE: AN SSSR. Doklady, v. 162, no. 3, 1965, 688-690

TOPIC TAGS: high energy proton, RBE, chemical antiradiation agent, AET, cystamine, serotonin, 5 methoxytryptamine, mouse

ABSTRACT: The RBE of 120- and 660-Mev protons was determined for different biological objects, and the antiradiation effectiveness of certain chemicals was tested. The objects were irradiated from a synchrocyclotron with a pulsed proton beam (with specific ionization of approximately 6 and 20 ion pairs per 1 μ for 660- and 120-Mev protons, respectively). The dose power was 400—700 rad/min for 660-Mev protons and 80—100 rad/min for 120-Mev protons. Different tests (not described) concerned with vital activity and heredity were used to estimate the RBE of protons as compared to gamma rays. Experiments showed that the RBE of 660- and 120-Mev protons (according to LD_{50} criteria) for rats and mice is 0.7, and that protons are somewhat less effective than gamma rays. Similar results were obtained by other experimenters.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220019-7

L 53048-65

ACCESSION NR: AP5014856

The antiradiation properties of various pharmacochemical substances were tested during irradiation with 120- and 660-Mev protons and also with gamma rays. Animals were injected intraperitoneally with the desired substance 15—20 min before irradiation with lethal doses. When AET, 5-methoxytryptamine hydrochloride, or serotonin creatine sulfate were injected into mice, 50—70% survived, and those that died lived longer than the unprotected animals. With cystamine dihydrochloride, 50% survived, and with tryptamine hydrochloride and 5-hydroxytryptophan, around 20% survived. The RBE of 120- and 660-Mev protons, as determined by these experiments on mice and rats, and by other experiments on fruit flies, seeds, and other biological objects, does not exceed 1. An RBE higher than 1 was observed for 510-Mev protons during experiments with dogs, and for 730-Mev protons with monkeys. The type of animal and the experimental methods used account for this difference. [JS]

ASSOCIATION: none

SUBMITTED: 31Jul64 ENCL: 00 SUB CODE: LS

NO REF SOV: 011 OTHER: 003 ATD PRESS: 4015

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